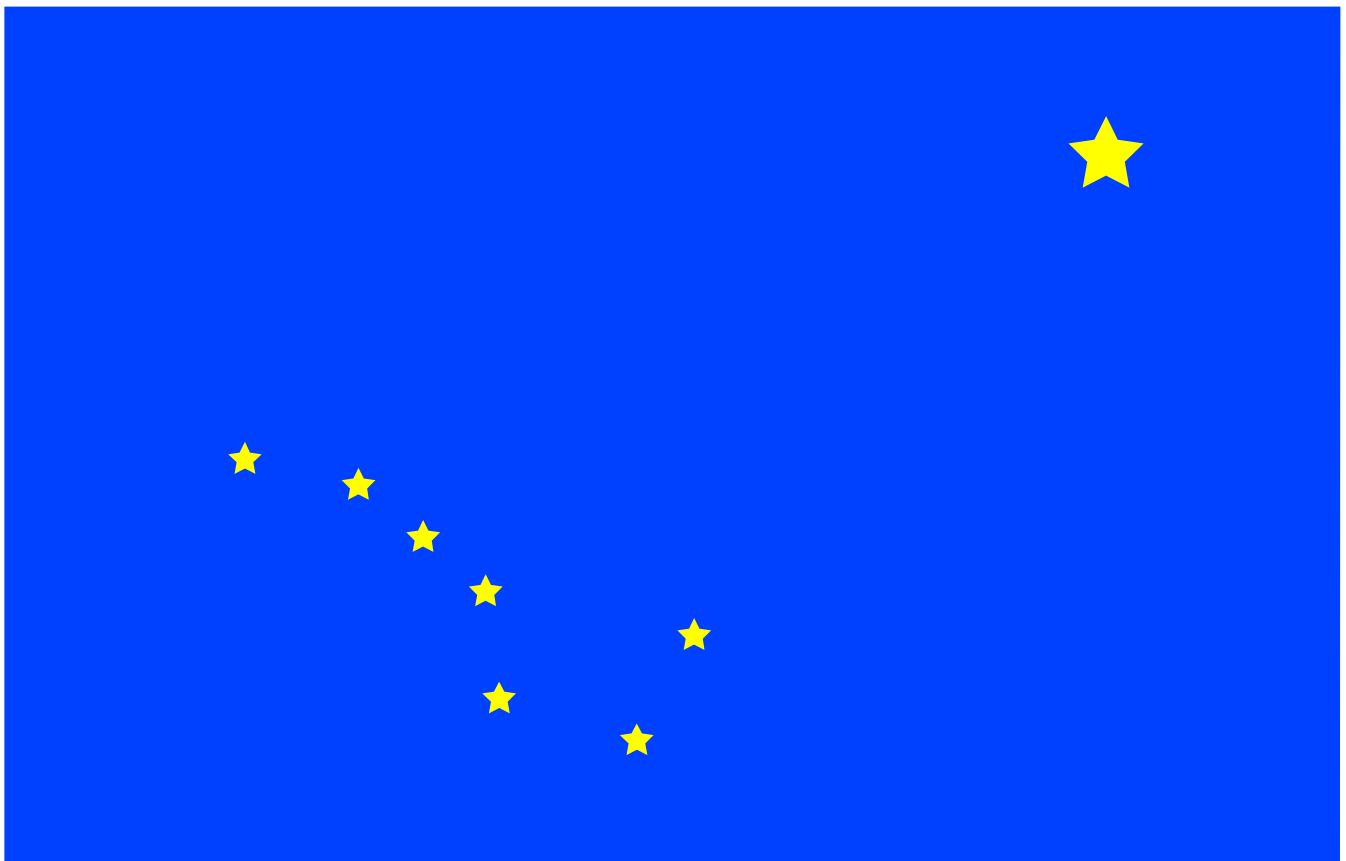


# Gerstle River Test Site Installation Action Plan FY 2005



printed September 2004

**FY2005 as of Sept 2004**

# **Gerstle River Test Site Installation Action Plan**



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# Statement of Purpose

The purpose of the Installation Action Plan is to outline the total multi-year restoration program for an installation. The plan will define Installation Restoration Program requirements and propose a comprehensive approach and associated costs to conduct future investigations and remedial actions at each Installation Restoration Program site at the installation.

In an effort to coordinate planning information between the Installation Restoration Program manager major army commands, installations, executing agencies, regulatory agencies, and the public, an Installation Action Plan has been completed for Gerstle River. The Installation Action Plan is used to track requirements, schedules, and budgets for all major Army installation restoration programs.

All site-specific funding and schedule information has been prepared according to projected overall Army funding levels and is therefore subject to change. Gerstle River Test Site is expected to be RIP in FY06.

## **Contributors to this Installation Action Plan:**

Alaska Department of Environmental Conservation

Engineering & Environment, Inc.

U.S. Army Environment Center

U.S. Army Garrison, Alaska

U.S. Environmental Protection Agency

# Acronyms & Abbreviations

<b>AEDB-R</b>	Army Environmental Database - Restoration
<b>ADC</b>	Alaska Defense Command
<b>ADEC</b>	Alaska Department of Environmental Conservation
<b>ATC/DTC</b>	Arctic Test Center and Desert Test Center
<b>bgs</b>	below ground surface
<b>BLM</b>	Bureau of Land Management
<b>CERCLA</b>	Comprehensive Environmental Response Compensation and Liability Act (1980)
<b>CLOSES</b>	Cleanup Operations and Site Exit Strategy
<b>CTC</b>	Cost-to-Complete
<b>CW</b>	Chemical Warfare
<b>CWM</b>	Chemical Warfare Material
<b>cy</b>	cubic yards
<b>DoD</b>	Department of Defense
<b>DSERTS</b>	Defense Site Environmental Restoration Tracking System (now called AEDB-R)
<b>EPA</b>	(United States) Environmental Protection Agency
<b>ER,A</b>	Environmental Restoration, Army (formally called DERA)
<b>FS</b>	Feasibility Study
<b>ft</b>	foot
<b>FUDS</b>	Formerly Used Defense Sites
<b>FY</b>	Fiscal Year
<b>GA</b>	type of chemical agent
<b>GB</b>	Sarin Nerve Agent
<b>GRTS</b>	Gerstle River Test Site
<b>HD</b>	type of chemical agent
<b>IAP</b>	Installation Action Plan
<b>IRA</b>	Interim Remedial Action
<b>IRP</b>	Installation Restoration Program
<b>K</b>	\$1,000
<b>LTM</b>	Long-Term Monitoring
<b>MMRP</b>	Military Munitions Response Program
<b>NE</b>	Not Evaluated
<b>NFA</b>	No Further Action
<b>NPDES</b>	National Pollutant Discharge Elimination System
<b>PA</b>	Preliminary Assessment
<b>PBC</b>	Performance Based Contracting
<b>POM</b>	Program Objective Memorandum (budget)
<b>PP</b>	Proposed Plan
<b>PY</b>	prior year
<b>RA</b>	Remedial Action
<b>RAO</b>	Remedial Action Objectives
<b>RA(O)</b>	Remedial Action - Operation
<b>RAB</b>	Restoration Advisory Board
<b>RC</b>	Response Complete
<b>RCRA</b>	Resource Conservation and Recovery Act
<b>RD</b>	Remedial Design
<b>REM</b>	Removal
<b>RI</b>	Remedial Investigation
<b>RIP</b>	Remedy in Place
<b>ROD</b>	Record of Decision
<b>RRSE</b>	Relative Risk Site Evaluation

# Acronyms & Abbreviations

<b>SI</b>	Site Inspection
<b>TAPP</b>	Technical Assistance for Public Participation
<b>USACE</b>	United States Army Corps of Engineers
<b>USACHPPM</b>	United States Army Center for Health Promotion and Preventive Medicine (formerly called USAEHA)
<b>USAEC</b>	United States Army Environmental Center (formerly called USATHMA)
<b>USAEHA</b>	United States Army Environmental Hygiene Agency (now called USACHPPM)
<b>USAG-AK</b>	United States Army Garrison, Alaska
<b>USARAK</b>	United States Army, Alaska
<b>USARPAC</b>	United States Army, Pacific Command
<b>USATHMA</b>	United States Army Toxic and Hazardous Material Agency (now called USAEC)
<b>UST</b>	Underground Storage Tank
<b>UXO</b>	Unexploded Ordnance
<b>VX</b>	Nerve Agent

<b>STATUS:</b>	The Gerstle River Test Site is an active training area near Ft Greely. This site was historically used as a test site for military testing of cold weather clothing and equipment, chemical and biological warfare. In 1970, the Gerstle River Expansion Area (GRTS-002), a FUDS site, was turned over to the state of Alaska in 1970.		
<b># OF AEDB-R SITES:</b>	5		
<b>ACTIVE AEDB-R SITES:</b>	1 - receiving funding		
<b>RESPONSE COMPLETE:</b>	4 sites		
<b>MMRP SITES:</b>	0		
<b>DIFFERENT SITE TYPES:</b>	1 Chemical Disposal Area	2 Landfills	
	1 Spill Site Area	1 Unexploded Munitions/ Ordnance	
<b>CONTAMINANTS OF CONCERN:</b>	Chemical agents: GB, VX, HD, GA	Decontamination agents	
	Chlorinated compounds	DS2	
	Associated ordnance residue	Petroleum/Oils/Lubricants	
<b>MEDIA OF CONCERN:</b>	Soil, Groundwater		
<b>COMPLETED REM/IRA/RA:</b>	REM-FY94 UST removal at Gerstle River Test Site (GRTS-001)		
<b>CURRENT IRP PHASES:</b>	RI/FS at 1 site		
<b>PROJECTED IRP PHASES:</b>	RI/FS and LTM at 1 site		
<b>IDENTIFIED POSSIBLE REM/IRA/RA:</b>	None		
<b>DURATION:</b>	Year of IRP Inception	1988	
	Year of RA Completion	2006	
	Year of IRP Completion	2034	

# Installation Information

***IRP EXECUTING  
AGENCIES:***

**IRP Executor:** U.S. Army Garrison, Alaska, Public Works Environmental Department

***REGULATORY  
PARTICIPATION:***

**Federal:** U.S. Environmental Protection Agency, Region X.  
**State:** Alaska Department of Environmental Conservation, Southern Region

***REGULATORY  
STATUS:***

None

***MAJOR CHANGES TO IAP  
FROM PREVIOUS YEAR:***

Historical research of documents and photos continues. This research will allow the Army to focus on areas of concern without expending funds to investigate the entire site.



# Installation Description

The Gerstle River Test Site has been a part of the U.S. Army operations since acquisition under Public Land Order 910 on August 7, 1953. This site was used by Dugway Proving Ground for chemical and high-explosive testing until 1962. Surveillance testing of chemical munitions was conducted in the area between 1962-1967 by the Arctic Test Center. During a period of 1954 to 1962, the Chemical Corps conducted various tests for chemical and biological agents.

Several major clean-up operations have occurred. In 1968, over 200 chemical projectiles were removed from Blueberry Lake. In August of 1970, the Arctic Test Center and Desert Test Center (ATC/DTC) conducted "Clean-up Alaska." This operation included excavation of at least 8 disposal trenches. Materials excavated included: CWM residue and contaminated soils, 5 and 55 gallon drums of decontamination agent, and soil wastes and construction debris. This material was placed into two disposal trenches on the active test site. In 1971, all known waste was dug up and relocated to the Blueberry Lake Pit. Since 1979, the Gerstle River Test Site has been maintained in a caretaker status.

A RAB was formed in September 1996, to cover both the active Installation Restoration Program portion of Gerstle River Test Site, and the Gerstle River Expansion Area, which is covered by the Formerly Used Defense Site program. Membership included representatives of local government, business and the community. The RAB has participated in reviewing plans and technical documents, provided advice on the scope of studies planned for the Expansion Area.

Community concerns and views are recorded as part of the Gerstle River FUDS RAB. In addition, meetings have occurred between local tribes and stakeholders in the immediate area to present information and listen to concerns on this site.

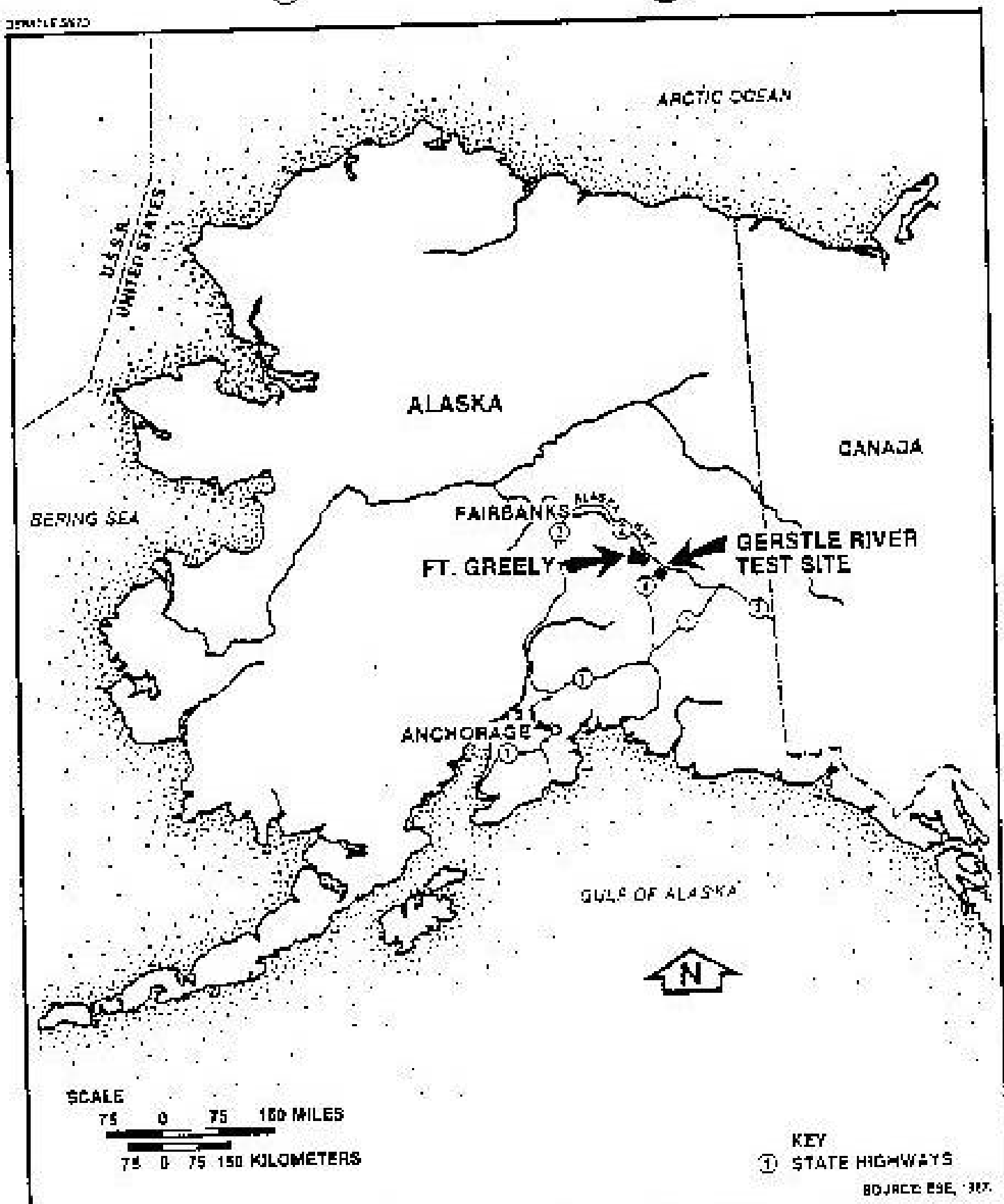


Figure 1-1  
LOCATION OF GERSTLE RIVER  
TEST SITE

Prepared for:  
U.S. Army Toxic and Hazardous  
Materials Agency  
Aberdeen Proving Ground, Maryland

# Contamination Assessment

Gerstle River Test Site is a 20,000 acre area located approximately 20 miles, southeast of Delta Junction and Fort Greely, Alaska. This site is comprised of one building that housed a laboratory, dining facilities, and quarters for personnel on the site. Gerstle River Test Site is currently used by U.S. Army, Alaska as a training area.

Testing activities were performed in the area since the mid 1950s. Records describing test activities completed between 1954 and 1962 have been moved to Fort Greely. Some documents are considered classified material and are not available for public use. Unclassified information indicates that the U.S. Army performed surveillance of chemical agent and high explosive munitions testing during that time period. In 1962, the U.S. Army reorganized, and the Arctic Test Board, under the U.S. Army Test and Evaluation Command, was established at Fort Greely. The purpose of the Test Board was to assist in performing test activities requiring arctic environments.

*From December 1962 through September 1967, the following tests were conducted:*

- Static detonation of various munitions (mines, bomblets, rockets, and projectiles) releasing nerve agents GB and VX to the environment
- Dynamic firing of projectiles with release of nerve agents GB and VX to the environment
- Dynamic release of biological simulates BG-1 and BG-2 from aircraft

In June 1972, the lease of 64,829 acres expired, and the property was turned over to the state of Alaska. This property is known as The Gerstle River Expansion Area and is managed under the FUDS program. Prior to the termination of the lease, a number of environmental cleanup operations were performed at the Expansion Area and Test Site, with "Operation Clean-up Alaska" being the last in 1970. Material recovered from the Expansion Area during these cleanup operations was deposited in disposal trenches on the active test site.

In 1969, chemical weapons being stored on Blueberry Lake awaiting disposal fell through the ice when it melted in the spring. The lake was drained, and all munitions were recovered. These munitions were demilitarized, the remains were placed in two trenches east of Blueberry Lake. Tests in the area of the pits have not detected any contaminants in soils or groundwater. In 1993, a site inspection (PA/SI) was performed and the results were sent to the EPA for ranking. Based on the site inspection report, the EPA ranked the site as needing no further action.

# Previous Studies

	Title	AUTHOR	DATE
1	Report of Foundation and Materials Investigation, Gerstle River, TD-2	U.S. ACE, Alaska District	Jul-59
2	Exploration and Testing of Subsurface Soils, Gerstle River Radioactive Waste Disposal Site	U.S. ACE, Alaska District	Mar-66
3	Installation Assessment of the Gerstle River Test Site, Report 105, Volume I	U.S. Army Toxic and Hazardous Materials Agency	Dec-76
4	Gerstle River Test Site Monitoring Plan	U.S. Army Cold Regions Test Center	Nov-86
5	Analytical Results for Gerstle River Test Site Samples, Prepared for NPD Materials Laboratory	Century Testing Laboratories, Inc.	Dec-86
6	Update of the Initial Installation Assessment of the Gerstle River Test Site, AK, Contract No. DAA15-85-D-0017 Task 0007/0010, Prepared for U.S. Army 6th Infantry Division (Light) and U.S. Army Garrison-Alaska Ft Richardson, and U.S. Army Toxic and Hazardous Materials Agency	Environmental Science and Engineering, Inc.	Mar-88
7	Site Screening Inspection Report for Gerstle River Test Site, Alaska, Contract No. DAA15-85-D-0017 Task 012, Prepared for U.S. Army Toxic and Hazardous Materials Agency	Environmental Science and Engineering, Inc.	Jan-93
8	Archives Search, Conclusions and Recommendations, Gerstle River Expansion Area, Big Delta, Site Nos. F10AK098400	U.S. ACE, St. Louis District	Jun-94
9	Gerstle River Expansion Area, Public Meeting & Residential Interview Report, Contract No. F10AK098404	Dames & Moore	Sep-94
10	Underground Storage Tank Removal, Site Assessment, and Recommendations	Brown and Root, Service Contractor	Sep-94
11	Site Characterization Operation Gerstle River Expansion Area Final Report, Contract No. DACA88-94-P-1293	Human Factors Applications, Inc. Explosive Ordnance Disposal Division	Oct-94
12	Initial Project Management Plan (IPMP) for Ordnance and Explosive Waste (OEW) at Gerstle River Expansion Area and Test Site, Project No. F10AK098404	U.S. Army Corps of Engineers, Huntsville Division	Feb-95
13	Final 1995 Non-Intrusive Work and Safety Plan; Site Investigation for OEW and CWM Gerstle River Expansion Area and Test Site, Contract No. DACA87-92-D-0021	Dames & Moore	Jun-95
14	1996 Intrusive Work and Safety Plan (Phase 2); Site Investigation for OEW and CWM Gerstle River Expansion Area and Test Site, Draft Report Contract No. DACA87-92-D-0021	Dames & Moore	Nov-95
15	Geophysical Target Analysis Report; Site Investigation for OEW and CWM Gerstle River Expansion Area and Test Site, Draft Report Contract No. DACA87-92-D-0021	Dames & Moore	Dec-95
16	Project Manager Non-Stockpile Chemical Material, Gerstle River Expansion Area, Interim Holding Facility Plan	U.S. Army, Program Manager for Chemical Demilitarization	Apr-96
17	1996 Intrusive Work and Safety Submission (Phase 2), Site Investigation for OE and RCWM, Gerstle River Expansion Area and Test Site, Contract No. DACA87-92-D-0021	Dames & Moore	Jun-96
18	Update of the Initial Installation Assessment of Gerstle River	USATHAMA	Mar-98
19	Final Records Review Memorandum For The Gerstle River Expansion Area, Big Delta, AK		June-98

# GRTS-01 GERSTLE RIVER TEST SITE

## SITE DESCRIPTION

The Gerstle River Test Site, encompassing approximately 20,800 acres, has been part of U.S. Army operations since its acquisition under Public Land Order 910 on August 7, 1953. Although testing activities have been performed in the area since the mid-1950s, accurate records are not available until the early 1960s. Weapons tests were actively conducted in this area from December 1962 through September 1967. Weapons testing during this period included static detonation of various munitions releasing nerve agents VX and Sarin (GB) to the atmosphere, dynamic firing of projectiles with release of GB and VX to the atmosphere, and dynamic release of biological simulants BG-1 and BG-2 from aircraft. All tests using chemical agents and biological simulants at the GRTS were suspended in 1967 and have not been resumed. This site is considered an active training range and will be used in the future.

Four major clean-up efforts have been conducted since 1967; the last cleanup effort was "Operation Cleanup Alaska," carried out in 1970.

During this effort, chemical munitions were removed from Blueberry Lake, decontaminated, detonated and the scrap metal was buried; debris from test grids on leased land was removed to disposal pits on Test Site property.

In 1987, a site investigation was conducted by USATHAMA. Samples were collected at locations coordinated and selected with the approval of EPA and the Alaska DEC. Samples were collected from surface soil, sediments, surface water from streams, and one groundwater well located at the Command Post. The samples collected were analyzed for the presence of chemical agents; the results did not indicate the presence of contamination.

In the 1990s, an extensive geophysical investigation was completed to identify the locations of burial pits at Blueberry Lake.

NOTE: There is a separate area known as the Gerstle River Expansion Area (~97,000 acres) that is being addressed under the Formerly Used Defense Sites (FUDS) Program.

In FY04, a historical data search began and some warning signs were placed around the site. A Gerstle River Task Force (EPA, ADEC, USACE, USAG-AK) was formed in FY04 and meets quarterly. Institutional Controls have been put into place to indicate the areas of concern and the areas of no digging.

## STATUS

**RRSE RATING:** Low

**CONTAMINANTS OF CONCERN:**

UXO, Contaminated Debris, CW

**MEDIA OF CONCERN:**

Soil, Groundwater

**COMPLETED IRP PHASE:**

PA/SI

**CURRENT IRP PHASE:**

RI/FS

**FUTURE IRP PHASE:**

RI/FS, LTM

## PROPOSED PLAN

The historical data search will be completed. Additional warning signs may be placed if needed. If historical data shows a need, groundwater wells may be installed and monitored.

## GRTS-02 EXPANDED GERSTLE RIVER TEST SITE

### SITE DESCRIPTION

GRTS-002 was leased to the Department of Defense (DoD) by the state of Alaska and the Bureau of Land Management (BLM) in the 1960s. Prior to the leasing, the area was an undeveloped wilderness area. From 1962 to 1967, GRTS-002 was used for chemical agent placement and dispersion experiments. The area is now used for subsistence and recreational activities.

Response at this site is considered complete and no further remedial action is planned. This area is now part of the Formerly Used Defense Site (FUDS) program.

### STATUS

**RRSE RATING:** NE

**CONTAMINANTS OF CONCERN:**

Chemical Agents

**MEDIA OF CONCERN:**

Soil, Groundwater

**COMPLETED IRP PHASE:**

PA/SI, RI

**CURRENT IRP PHASE:**

RC - 1995

## GRTS-03 BLUEBERRY LAKE ACCIDENTAL SPILL

### SITE DESCRIPTION

Scrap debris and decontaminated materials were placed in two burial pits. Live munitions were removed from GRTS-003 and decontaminated and buried.

Response at this site is considered complete and no further remedial action is planned. This site has been combined into GRTS-001.

### STATUS

**RRSE RATING:** NE

**CONTAMINANTS OF CONCERN:**

Chemical Agents

**MEDIA OF CONCERN:**

Soil, Groundwater

**COMPLETED IRP PHASE:**

PA/SI

**CURRENT IRP PHASE:**

RC - 1995

# GRTS-04 DISPOSAL PIT NW OF CHEMICAL TEST FACILITY

## SITE DESCRIPTION

Two grids were used until 1967 for chemical munitions testing and disposal.

Response at this site is considered complete and no further remedial action is planned. This site has been combined into GRTS-001.

## STATUS

**RRSE RATING:** NE

**CONTAMINANTS OF CONCERN:**

Scrap Metal

**MEDIA OF CONCERN:**

Soil, Groundwater

**COMPLETED IRP PHASE:**

PA/SI

**CURRENT IRP PHASE:**

RC - 1995

# GRTS-05 DISPOSAL PIT E OF BLUEBERRY LK

## SITE DESCRIPTION

The two known disposal sites located near Blueberry Lake are part of GRTS-001. All material during "Operation Cleanup Alaska" were moved to this site.

No action is needed at this site. This site has been combined into GRTS-001.

## STATUS

**RRSE RATING:** Low

**CONTAMINANTS OF CONCERN:**

None

**MEDIA OF CONCERN:**

None

**COMPLETED IRP PHASE:**

PA/SI

**CURRENT IRP PHASE:**

RC - 1992

## PAST MILESTONES

PA Initiation (GRTS-01, 002, 003, 004 & 005)	Jun 1975
PA Completion (GRTS-01, 002, 003, 004 & 005)	Dec 1976
Year of IRP Inception	1988
SI Initiation (GRTS00, 002, 003, 004 & 005)	Jun 1992
SI Completion (GRTS-01, 002, 003, 004 & 005)	Oct 1992
REM Initiation, UST (GRTS-01)	Jul 1994
REM Completion, UST (GRTS-01)	Sep 1994
RI Initiation (GRTS-01 & 002)	Nov 1994
RI Completion (GRTS-002)	Oct 1995
RD Initiation (GRTS-002)	Oct 1995
RI Completion (GRTS-01)	Oct 1995
RA Initiation (GRTS-002)	Oct 1996
RD Completion (GRTS-002)	Oct 1996

## FUTURE MILESTONES

RI Completion (GRTS-01)	2006
<b>Projected completion date of all RA:</b>	<b>2006</b>
<b>Projected completion date of all IRP</b>	<b>2034</b>

## NO FURTHER ACTION

GRST-002, Expanded Gerstle River Test Site  
GRST-003, Blueberry Lake Accidental Spill  
GRST-004, Disposal Pit NW of Chemical Test Facility  
GRST-005, Disposal Pit E of Blueberry Lake



# Gerstle River Test Site IRP Schedule

(Based on current funding constraints)

AEDB-R #	TITLE	PHASE	FY05	FY06	FY07	FY08	FY09	FY10+
GRTS-001	Gerstle River Test Site	RI/FS						
		LTM						

# Remediation Activities

**COMPLETED REM/IRA/  
RA:**

GRTS-001, Removal of USTs at Gerstle River Test Site command post,  
(FY 94)

**CURRENT REM/IRA/RA:**

None completed with IRP Funds

**FUTURE REM/IRA/RA:**

None

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# Community Involvement

## RESTORATION ADVISORY BOARD (RAB) STATUS

The Army formed a RAB for Gerstle in 1996, with FUDS to combine the Gerstle River Test Site and the FUDS Gerstle River Area. Because the Army was not conducting any work at Gerstle besides a UXO removal, once that work was completed, the Army's role in the RAB was deemed not required at that time.

In 2003, when the Army began the historical research the test site, the Army again rejoined the existing RAB. We are currently cochairing the RAB with FUDS. The FUDS sites are expected to gain closure in 2004, at which time, the Army will be the sole chair of the RAB.

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